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FORAGERS AND FARMERS IN MESOLITHIC/NEOLITHIC EUROPE, 5500-3900 cal BC: BEYOND THE ANTHROPOLOGICAL COMFORT ZONE

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1. Introduction

In this contribution I will consider the relationship between Mesolithic foragers and Neolithic farmers across a long-lasting boundary between the two. Linearbandkeramik (LBK) farmers reached northern Germany and the Netherlands at around 5500 cal. BC. The farming spread then virtually ceased, while the LBK evolved into the Rössen. North of the farmers were foragers, termed Swifterbant in the Low Countries, and Ertebølle in the Baltic regions (Figure 1). Farming only spread north into these areas around 4000 cal. BC.

Forager/farmer relations across this boundary have been much discussed. One major topic is the spread of farmers' artefacts north to the foragers – Figure 1 plots adzes of LBK and Rössen manufacture. These have often been interpreted as reflecting the foragers' desire for exotic items made by the farmers, which may be given a high symbolic value (e.g. Fischer 1982, Klassen 2002, Verhart 2012). Other items also spread to the north, including flint points and pottery (Vanmontfort 2008, Verhart 2000). Fischer (2002, 376) terms this “the prestige of the exotic”. Zvelebil (2006, 185) discusses the contacts in terms of core and periphery: the peripheral foragers imported prestigious goods such as axes, ceramics and ornaments from the core farming area. In return they supplied the farmers with hunter-gatherer products such as furs, honey and seal fat, and the foragers probably suffered a net loss of population as their women married farmers. Others have argued along broadly similar lines (e.g. Alexander 1978, Klassen 2002, Verhart 2000). Some have been more cautious (e.g. Dennell 1985, Raemaekers *et al.* 2011, 24), but these are in the minority. Only recently have some begun to question the core-periphery scenario (Bogucki 2008, Gronenborn 2009, 2010).

The prestigious foreign artefacts have been ascribed an important role in destabilising forager societies and hastening the introduction of agriculture. Zvelebil (2006) argues that the trade led to increased social competition among foragers, because status was gained by the ownership of such items. As the flow of goods from the farmers increased, so the destabilisation increased: employed in competitive feasting, exotic goods led to an increasingly hierarchical society; further destabilisation might come from the over-exploitation of (for example) fur-bearing animals to pay for the exotic items (Zvelebil 2006). Prestige could also be obtained through the import of exotic foodstuffs such as cereals and domestic animals (e.g. Fischer 2002, 2003). Thus the farmers' artefacts played a direct role in the neolithisation of the Rhine-Baltic region.

The assumption that farmers' artefacts have a high symbolic value, and may therefore destabilise forager societies, is one that contemporary European

archaeologists regard as self-evidently true, conditioned as we are by our innate certainty that foragers will regard farmers as a superior form of life. This is, however, derived almost entirely from *recent* European experiences of contact with foragers, and indeed the selective employment even of these. Some of our archaeological interpretations are derived more from anthropological and ethnohistorical contact situations perceived (consciously or unconsciously) to be relevant, than they are from the archaeological record itself.

The best-documented contact situations inevitably derive from the recent past, and it is doubtful whether they are remotely relevant for our understanding of Mesolithic/Neolithic interactions in the Rhine-Baltic area. I will a) examine some anthropologically-documented situations from which our understandings are derived; and then b), consider whether the archaeological record of the Rhine-Baltic foragers can be understood in the same terms. I will argue that there are various reasons why the Rhine-Baltic situation is different from the examples we know from anthropology. It is time that archaeology ventured out from under the anthropological comfort zone.

2. Asymmetrical technology: Europe and the savages

Contact between colonial Europeans and hunter-gatherers has not been characterised by mutual understanding and regard. When even so enlightened a scientist as Charles Darwin encountered Tierra del Fuegians in their native habitat, his culture shock was profound: “I could not have believed how wide is the difference between savage and civilized man.... These poor wretches were stunted in their growth, their hideous faces bedaubed with white paint, their skins filthy and greasy, their hair entangled, their voices discordant, and their gestures violent. Viewing such men, one can hardly make oneself believe that they are fellow-creatures, and inhabitants of the same world” (Darwin 1860 [1962, 205, 213]). Given scarlet cloth, the Fuegians tied it round their necks; they begged for metal knives and stole them when they could, but were frightened of firearms (*ibid.*, 206-7).

Darwin’s experience typifies that of many Europeans. This section will examine some European encounters and attempt to distil some common threads. The encounters are varied in time and space, and consider one key aspect: the superior technology of the Europeans. This technological asymmetry characterised relationships not just with foragers, but also with farmers with no knowledge of metals. In the following, two farmer and two forager situations are examined.

Mick Leahy in New Guinea, 1930-35

Michael Leahy was an Australian gold prospector who travelled in Highland New Guinea, where he encountered Papuans who had not previously seen white men. His written account of his travels was published posthumously (Leahy 1991), and has been discussed in an archaeological context by Verhart (2000).

Papuans had no understanding of firearms, and Leahy and his party would shoot birds “to the astonishment of any local natives” (Leahy 1991, 11). Figure 2 (top) shows the amazed reactions of one group to his demonstration. In various hostile encounters, Leahy and his party shot and killed a number of Papuans. Papuans imitated firearms by carrying sticks of the right length over their shoulders (*ibid.*, 20). Leahy had brought Australian tools to trade, and “the natives were fascinated by steel axes which could cut a tree almost straight through, knives which cut off a stick with

one clean blow” (*ibid.*, 20). Leahy mentions various instances when Papuans traded, were given, or stole these implements. Sometimes there was a little initial trepidation, because “some sorcery might have been associated with the knives” (*ibid.*, 94), but they were soon actively sought.

Leahy also carried non-utilitarian trade items. In one of his first encounters with a frightened Papuan, Leahy placated the man with a gift of red cloth and beads (Leahy 1991, 13). Other items worked in more unexpected ways. Verhart (2000) lays particular emphasis on the Highlanders’ desire for marine shells, and Leahy’s response, between them a particularly informative aspect of culture contact. In the Mount Hagen region, gold lip shells from the coast were very valuable. The Highland Papuans had no idea where they came from, but thought they might grow on trees like fruit. They were traded inland, becoming ever more worn and fragmented as they moved into the Highlands (Leahy 1991, 98-9). On subsequent trips Leahy brought plentiful supplies of gold lip shell with him, but on his first visit he did not know that they were valuable. He improvised an alternative:

“Having no gold lip shell at that stage, we tried china saucers and plates as a bright, shiny white substitute. These were snapped up, and we wrote Mrs. Wright, the cook at Guinea Airways’ mess in Lae, to send us any broken crockery or discarded plates. The shards went like hotcakes, and in a few days reappeared, with holes neatly drilled through them, as breast decorations worn suspended from the neck” (Leahy 1991, 99).

Figure 2 (centre) shows two Papuans, one wearing a marine shell on his forehead, the other one of Leahy’s plates. When plates ran out, anything would do:

“They bartered for almost any article of trade – discarded tins, bottles, or even the coloured labels around meat tins; old razor blades or empty cartridge or bullet shells; or a thin strip of coloured cloth. The natives considered anything associated with our party to be impregnated with spirits and magic that apparently protected us as we traveled among their neighbours and hereditary enemies” (Leahy 1991, 45-46).

The lower two photos in Figure 2 show Papuans using such items in place of shells.

But the influx of goods could cause inflation. Small cowrie shells called *tambu* were a useful form of currency, scarce in the Highlands but easily obtainable on the coast. Many subsequent travellers in the Highlands brought quantities with them, and Leahy noted that “today the shell currency market has become saturated, and the natives want hard cash or folding money” (1991, 94).

This case-study exemplifies the situation when technologies are asymmetrical. The ‘shock and awe’ created by the firearms, the greater efficacy of steel axes and knives, and the exotic nature of the technology in general, endowed all things Australian with a high symbolic value. It was, however, not always like this, as the next example reveals.

European traders in Labrador, 1600-1900

This case study is rather different from Highland New Guinea. The Inuit whom British and French traders encountered on the Labrador coast were hunter-gatherers and thus of potentially great relevance to this discussion. Here too, European goods

were highly sought after, but mainly for utilitarian rather than symbolic purposes. The Inuit social response was however similar to what has been argued for the Ertebølle.

Documented contacts between Europeans and Inuit in the seventeenth century were rather limited, but the archaeological record suggests that the Inuit were already heavily dependent on European iron at this time. Much superior to slate and ivory, iron was cold-hammered into traditional Eskimo forms such as harpoons, *ulus* (semicircular knives), tanged arrowheads and scrapers. Exotic items like beads and clay pipes were extremely rare (Jordan 1976).

In the eighteenth century, French fishermen occupied the southern extremity of Labrador, and contacts increased. Inuit trading and thievery increased markedly. Iron remained the major commodity, but other items were also involved. Significantly, the Inuit made considerable social adaptations: large multi-family houses developed around high-status males. These larger social units provided crews to man the whaling boats that acquired baleen and whale oil for sale to the Europeans. In southern Labrador, close to the French settlements, the Inuit household heads in turn dominated the trade in European goods, acting as middlemen between the French and the more northerly Inuit (Kaplan 1985). One excavated Inuit house contained “five French clasp knives, over eight thousand trade beads, hundreds of spikes and nails, musket balls, gunflints, gun parts, kaolin pipe fragments, spoons, buttons, glass, and ceramic sherds” (Kaplan 1985, 59), amassed for trade to the north. This Inuit social development of ‘big men’ was entirely due to trade with the Europeans; zooarchaeological studies indicate that the later eighteenth century was a time of relatively benign climate, so ecological factors were not involved (Woollett 1999).

The ‘big man’ system declined in the late eighteenth century, when the British took over Labrador and wished to discourage trading/raiding forays by the central and northern Inuit. They did this by permitting Moravian missionaries to open mission stations at various points along the northern coast. These missions contained trading posts from which Inuit could obtain European goods and weapons, thus eliminating the need for them to sail southwards (Kaplan 1985).

The sources quoted here make little mention of symbolic importance being attached to European goods by the Inuit. Items like trade beads no doubt had some such importance, but by far the most important commodities were utilitarian items such as iron, and containers. These could be incorporated into Inuit culture without being regarded as symbolically important exotic items. Inuit made considerable use of meteoric iron before European contact (McGhee 1984, 15), so European iron was just ‘more of the same’. From the 1840s, stamped earthenware made in Britain was traded to the Inuit. Flat plates suitable for individual European meals were most commonly manufactured; the Inuit, however, preferred bowls, which they used for communal meals in the way they had formerly used wooden or soapstone bowls (Cabak & Loring 2000) (Figure 3 top). When broken, the earthenware bowls were mended in the native manner, exactly as if they were made of traditional materials (pers. comm. from Stephen Loring) (Figure 3 bottom).

English colonists in Jamestown, Virginia, 1607-17.

English colonists encountered agricultural Indians around Chesapeake Bay. Although this was over three centuries before Mick Leahy ventured into Highland New Guinea, contacts with the local Indians were in many ways remarkably similar.

The documentary evidence for the first decade of the Jamestown colony has been collected by Haile (1998). The first mention of an English visit to Chesapeake

Bay is in fact a Spanish record from 1560, recording the testimony of an English prisoner named only as John, from Bristol. On a French ship some years earlier, he met many Indians. He stated that "...they gave them as many as a thousand marten skins in exchange for knives, fishhooks, and shirts" (Haile 1998, 5). These exchanges were evidently heavily biased in the Europeans' favour. At Jamestown itself, consideration can be divided into three: weapons, tools, and non-functional objects.

Regarding weapons, the colonists' instructions were that these were banned as trade goods; the Indians should not even be taught skills like blacksmithing that might allow them to manufacture their own (Haile 1998, 24). Once again, firearms caused amazement. On 25 May 1607, Gabriel Archer encountered a chief, who:

"...was desirous to have a musket shot off... Our captain caused a gentleman to discharge his piece soldier-like before him, at which noise he started, stop'd his ears, and express'd much fear, so likewise all about him. Some of his people being in our boat leapt overboard at the wonder thereof" (Haile 1998, 111).

When an Indian was caught trying to steal two swords, Captain John Smith had him placed in irons (Haile 1998, 174). Later in 1607 the colonists began to run out of supplies, and the Indians offered food in return for swords and muskets. Smith refused, offering instead beads and axes (*ibid.*, 232). The Indians did however obtain some weapons, both from disaffected German labourers and from sailors on visiting ships. The colonists sought to get these back: in 1609 an Indian was held hostage until a stolen pistol was returned (*ibid.*, 317-18), and a truce in 1614 specified the return of weapons (*ibid.*, 845).

Tools and non-functional objects were however traded freely. In 1612, William Strachey wrote that:

"They are much desirous of our commodities..., and demand after copper, white beads, hoes to pare their cornfields, and hatchets, for which they will give us of such things as they have in exchange, as deerskins, furs of the wildcat, black fox, beaver, otter, *arrachoune* [raccoon], etc., fowl, fish, deer, or bear skins, tried deer's suet made up handsomely in cakes, their country corn, peas, beans, and suchlike" (Haile 1998, 673).

Strachey saw the effects of inflation: in 1610 "...the Virginians were glutted with our trifles and enhanced the prices of their corn and victual, that copper, which before would have provided a bushel [c. 35 litres], would not now obtain so much as a pottle [1.9 litres]" (Haile 1998, 441).

Much of the trouble between colonists and Indians was caused by the attempted theft of tools. Knives and axes were apparently valued simply as tools, but in late 1607 the chief Powhatan fell for John Smith's sales talk about beads:

"[Powhatan] fixed his humor upon a few blue beads. A long time he importunately desired them, but Smith seemed so much the more to affect them as being composed of a most rare substance of the color of the skies, and not to be worn but by the greatest kings in the world. This made him half mad to be the owner of such strange jewels, so that, ere we departed, for a pound or two of blue beads he brought over my king for 2 or 300 bushels of corn..." (Haile 1998, 246).

Thus here too firearms created ‘shock and awe’. The Indians seem to have attached more symbolic value to non-utilitarian objects such as beads and coloured cloth than they did to steel axes and knives. The final example takes these principles back a further 600 years.

Thorfinn Karlsefni in Vinland, c. AD 1000

Eirik’s Saga and the *Grænlendinga Saga* may provide the earliest detailed description of a European encounter with indigenous foragers. Vinland is probably to be identified with L’Anse aux Meadows, the Norse site on northern Newfoundland (McGhee 1984, Fitzhugh 1985). When Thorfinn Karlsefni met his first Skrælings (the Vikings’ term for the natives), his culture shock was in some ways like Charles Darwin’s (quoted above): “they were small and evil-looking, and their hair was coarse; they had large eyes and broad cheekbones” (Magnusson & Pálsson 1965, 98).

Many of the elements characterising the later European contacts discussed above were already present in the Norse encounter. Relations were a mixture of hostility and trade. Both sagas record that the Skrælings brought furs to trade, “preferably in exchange for weapons; but Karlsefni forbade his men to sell arms” (Magnusson and Pálsson 1965, 65); and one of Karlsefni’s men killed a Skræling whom he caught trying to steal weapons (*ibid.*, 66). The Skrælings were impressed with iron axes; following a skirmish in which they got the better of the Vikings:

“...the Skrælings found the other dead Norseman, with his axe lying beside him. One of them picked it up and chopped at a tree with it, and then each one of them in turn tried it; they all thought it a wonderful find, because of its sharpness” (Magnusson & Pálsson 1965, 100, n3).

And as ever, red cloth was sought after:

“What the natives wanted most was to buy red cloth; they also wanted to buy swords and spears, but Karlsefni and Snorri forbade that. In exchange for the cloth they traded grey pelts. The natives took a span [*nine inches*] of cloth for each pelt, and tied the cloth round their heads. The trading went on like this for a while until the cloth began to run short; then Karlsefni and his men cut it up into pieces which were no more than a finger’s breadth wide; but the Skrælings paid just as much or even more for it” (Magnusson & Pálsson 1965, 99).

There is no mention that beads were traded; perhaps the Vikings, not expecting to encounter natives, had not brought any. Later Viking contact with areas further north in Canada does appear to have involved decorative items, because fragments of copper are found on Inuit sites (McGhee 1984, Schledermann 1980).

Asymmetrical technology: conclusions

This brief consideration of a millennium of European contact with foragers and low-technology farmers is instructive at a number of levels. The first conclusion is that the *desirability* of the colonists’ items is not a straightforward issue. Items, such as steel axes and knives, were prized mainly for their utilitarian value – only the Papuans are recorded as giving them any kind of symbolic value, and that would presumably have faded rapidly as they acquired them in quantity, ‘domesticated’ them, and put them to

use. Their great efficacy as working tools was what made these items desirable (and cf. the bowls in Figure 3). Steel supplanted stone everywhere – the explorer Mitchell, travelling in the Queensland interior in 1846, found that “even here, on a river utterly unheard of by white men, an iron tomahawk glittered on high in the hands of a chief” (cited in Reynolds 1981, 8). While ownership of a steel axe no doubt conferred a certain cachet, in the examples discussed above this appears to have accrued because of the axes’ utilitarian rather than symbolic value.

The ‘red cloth and trade bead’ category of goods seems to have been accorded more symbolic value, from Thorfinn Karlsefni’s ripping off the Skrælings with ever-smaller pieces of cloth, to John Smith’s hoodwinking of Powhatan about the blue beads, to Mick Leahy’s purveying of broken crockery to the Papuans. Figure 2 shows some classic examples of this principle in action. While it would be dangerous to draw too sharp a distinction between the utilitarian axes and the decorative cloth and beads, non-metal using native peoples do appear to have responded somewhat differently to the two categories. Both William Strachey in Virginia and Mick Leahy in Highland New Guinea saw the inflationary dangers in over-supplying such commodities: their value fell to little or nothing.

European weaponry was, of course, what underpinned technological superiority. Thorfinn Karlsefni and John Smith both did their utmost to prevent the natives getting their hands on any, and there was no question that Mick Leahy would have parted with his guns. The French, however, supplied muskets to the Labrador Inuit, even though the Inuit sometimes attacked and killed Frenchmen. It is possible that this was part of a wider geopolitical powerplay. After the French lost control of Labrador to the British in the later eighteenth century, they armed the Montagnais in the interior to enable them to attack the Labrador Inuit, newly part of the British Empire (Jordan 1976). The European powers often armed their own client native peoples to enhance their fur-procuring abilities – and to make life difficult for their enemies (Wolf 1982).

The fundamental question about these anthropological case studies is: to what extent can they be extrapolated to Mesolithic/Neolithic Europe? In the next section I consider the relations between LBK/Rössen farmers, and Swifterbant/Ertebølle foragers.

3. Symmetrical technology: what did the farmers have that the foragers wanted?

There are two huge differences between the colonial case studies considered above, and the Mesolithic and Neolithic in the Rhine-Baltic area. The first of these is timespan. The prehistoric 1500-year farming standstill (Figure 1) is far longer than any of the ethnohistorical situations. This limits the usefulness of the recent examples – recent foragers have been swept aside far more quickly.

Of the four case studies considered above, only the Labrador Inuit underwent a change towards social complexity of the kind often claimed for the Rhine-Baltic foragers. It may fairly be objected that, left to play out over a longer period, the others might have seen parallel developments. The Labrador Inuit case was, however, only possible for geographical reasons: the French traders were located *at one end* of the forager distribution along the coast. This allowed the Inuit closest to the French to dominate the trade to the north, thus acquiring high status. In contrast the Rhine-Baltic foragers were spread *along* the northern margin of the farmers; it is hard to see how any individuals could have dominated the trade. Terberger *et al.* (2009, 262)

argue that the artefactual distributions suggest that there were no specialised traders; rather the objects moved from hand to hand.

The other huge difference is technology: the farmers did *not* have firearms, swords, steel axes, trade beads, or red cloth. In the following I will examine the three categories that emerged above: weapons, tools, and non-utilitarian items; and then consider elements of the agricultural economy. I will pose the question: what did the farmers have that the foragers wanted?

Weapons

In the absence of firearms or swords in Mesolithic/Neolithic Europe, consideration is directed towards stone tools. The distinction between a tool and a weapon is problematic – stone axes are normally regarded as tools, but in the LBK death pit at Talheim they were certainly used to kill people. A total of 22 cranial injuries were inflicted with flat axes, only four with shoe-last adzes of the kind plotted in Figure 1 (Wahl & Trautmann 2012, 85). The adzes are therefore considered as tools, in the next section. The only definite weapons to cross the forager-farmer boundary actually go the ‘wrong’ way: Mesolithic arrow armatures are found on LBK sites.

Microliths on LBK sites have been much discussed. The majority are of local Mesolithic type. Some have argued that this indicates continuity from Mesolithic to Neolithic (see Robinson *et al.* 2010 for a discussion). Others argue that they indicate forager-farmer contact, although the chronology and nature of the terminal Mesolithic is largely unknown. What is important here is the way such *kontaktfunde* are discussed. Perhaps the most thorough consideration is presented by Lüning (1991), who sums up his discussion in diagrammatic form (Figure 4). *Kontaktfunde* might be due to chance (the top branch). If not, they must derive either from forager/farmer exchange (middle), or they must be copies of earlier types, whether made by foragers or farmers (bottom). Most discussions assume that the arrows arrived with forager clients visiting the farmers to trade; one microlith of definite Scandinavian type comes from the earliest LBK contexts at Bruchenbrücken (Figure 1), a definite Mesolithic import (Gronenborn 2010, 562). Consideration is however rarely given to the possibility that the farmers might have regarded Mesolithic arrows as symbolically important. Yet this seems entirely plausible: the northern LBK did remarkably little hunting (Rowley-Conwy 2013, Table 1), so their archery equipment was probably not very good. Reconstructions of foragers’ bows and arrows however reveal that these were remarkably powerful (Fischer 1989) – as they had to be, when livelihood depended on the efficient killing of wild boar, aurochs and deer. Fragments of a Mesolithic-type bow of elm wood from the LBK site of Kückhoven (Weiner 1995) indicate contact with the hunter-gatherers to the north (Gronenborn 2010, 563), suggesting that the farmers were keen to acquire such items. If any weaponry was regarded with ‘shock and awe’, it was surely Mesolithic bows and arrows at Neolithic settlements.

Tools

This section considers ground stone axes and ceramics. These are commonly discussed as the kind of item that farmers could supply to foragers. But in the Rhine-Baltic region the foragers manufactured their own versions of both.

The LBK and Rössen adzes (Figure 1) were made of stone found only in farming areas (Fischer 1982, Verhart 2012). Their presence among the foragers

provides the strongest claim that the foragers regarded farmers' technology in the same way that the natives regarded European technology in the ethnohistoric cases. Yet there are grounds for questioning this. The Ertebølle produced their own ground stone axes, the 'stump-butted axe' or *trindøkse* (Hermansson & Welinder 1997, Johansen 2000). The stump-butted axe did not have a shafthole, but was in other respects similar. The Swifterbant did not produce native-made ground stone axes, but "good functional equivalents" of bone and antler are mentioned by Verhart (2012, 23). If the adzes moved north from hand to hand rather than via entrepreneurs (Terberger *et al.* 2009, 262), a forager obtaining one from a neighbouring foraging camp may have been entirely unaware that the adzes came from a great distance away. Axes also moved south: Ertebølle-type flake axes have been found in LBK contexts at Eitzum, Eilsleben and Müddersheim (Gronenborn 2010, 562) (see Figure 1).

How 'special' would European iron and steel axes have been to foragers if those foragers had been producing their own equivalents? Archaeologists regard the LBK and Rössen adzes as very special, because we can identify them and trace their origins. But there is no indication from the archaeological record that Mesolithic foragers thought they were special. Most examples are single finds with no archaeological context, 'special' or otherwise (Raemaekers *et al.* 2011, 16-17). Two points must be stressed. First, there are apparently no copies of LBK or Rössen adzes made by the foragers using local stone. They were evidently not special enough to be imitated. Second, they were not just symbolic, they were used: many were broken during use and reworked for further use. Figure 5 shows two such examples from Denmark. The left example broke through the original shafthole (at the top of the surviving fragment), and a new shafthole was drilled. The right example has the old shafthole running across one face. There are similar examples from the Swifterbant (Raemaekers *et al.* 2011, 17-19; Verhart 2012, Figures 2 and 11). It is of course possible that the axes were traded in this state (Verhart 2012, 24), but there is no evidence that this was the case.

The issue of inflation is important, particularly given the long time span involved. In two of the ethnohistoric cases, Virginia and New Guinea, inflation resulted from the increased availability of European and Australian goods. This would seem to be a likely outcome in every such circumstance. But Zvelebil (1996, 1998) has argued that the increased import of goods from the farmers would be paralleled by increased competition and destabilisation of forager society. It is, however, hard to see how this could be the case, since the *increased* availability of imported exotica would *decrease* their value.

Ceramics, too, were produced indigenously by the foragers, both Swifterbant and Ertebølle. The earliest Swifterbant ceramics date from *c.* 5000 cal. BC (Raemaekers & de Roever 2010). The earliest Ertebølle ceramics come from Schlamersdorf in Holstein (see Figure 1), which has produced dates around 5300-5100 cal. BC (Hartz *et al.* 2000, Table 3). Doubts have been raised about this date (Crombé 2009, 483), and most are not older than 4700 cal. BC (Hartz *et al.* 2007, Andersen 2007). Both Swifterbant and Ertebølle are thus later than the early LBK – but the foragers did not copy the farmers' vessels: "there are no signs of any contact between southern Scandinavian Mesolithic groups and Central European Neolithic societies that reflect any interest among the foragers in the farmers' pottery" (Müller 2011, 291). They copied those made by foragers further up the Baltic. This has become apparent as the various eastern Baltic ceramic traditions have been defined and dated. Figure 6 shows the main groupings (Hallgren 2008; see also Hallgren

2004, 2009). All these are dated to before 5000 cal. BC (Hallgren 2004, Figure 7), and the pointed base Ertebølle vessels clearly derive from them. A pointed base vessel of Ertebølle origin has been found on the LBK site of Rosheim (Gronenborn 2009, 536), a long way up the Rhine (Figure 1).

Since the foragers were not referencing the farmers in the axes or ceramics they made themselves, it is hard to depict them as clients desiring everything the farmers manufactured. Once again the ethnohistoric analogy fails to explain the archaeological record.

Non-utilitarian items

The ‘red cloth and trade bead’ category was accorded most symbolic importance in the ethnohistoric contact situations discussed above. There was little visible activity in this area in the Rhine-Baltic Mesolithic, however, and what there is does not suggest the export of farming commodities to the foragers. The LBK cultivated flax and reared sheep, but this was long before the emergence of linen cloth or woolly sheep, so it is unlikely that textiles were a major farming export. A piece of worked amber was found at the LBK site of Kückhoven, probably acquired from the foragers (Terberger *et al.* 2009, 266). Another category is more widespread: shell pendants and buttons (German *doppelknöpfe*). Pendants made of oyster shell have been found at Hornstaad-Hörnle on the Bodensee in southern Germany (fig. 1) (Heumüller 2009, 2012). Oysters are widespread round the coasts of Europe, and could have been obtained from anywhere – even early farming communities in the Mediterranean. The distinctive buttons, mostly circular with a groove cut round the edge, are found not just at Hornstaad-Hörnle, but also at Rössen and Třebestovice near the Elbe, and Hörsching-Haid and Eggenburg-Zogelsdorfstraße on the upper Danube (Heumüller 2009, Abb. 124; 2012, Abb. 5). The species of shell from which they are made has not yet been identified, and freshwater mussel (*Unio* sp.) cannot be ruled out. But *if* they are made of marine shell, they may come from the Ertebølle area because identical ones have been found at Havnø in Denmark (Andersen 2008). If this link is established, then the oyster pendants *might* come from the Ertebølle as well. This chain of inference may be disproved in the future; but if the buttons really come from the Ertebølle then they were apparently regarded as ‘special’, because copies are known in a variety of other materials including stone, boar tusk, bone and pottery – all white materials, imitating the natural colour of the shell specimens (Heumüller 2009, 2012).

T-shaped antler axes are found on both forager and farmer sites. The T-axis is usually viewed as a Neolithic tool traded to (or copied by) the foragers (e.g. Klassen 2002, 314-15; Price & Gebauer 1992, 101; Solberg 1989, 266). However, dating evidence suggests that they originated among the foragers, and were traded to the farmers (Crombé *et al.* 2002; Bogucki 2008; Gronenborn 2009). The T-axis is discussed in this section because some farmers seem to have accorded it a symbolic significance – although the foragers did not. Peter Bogucki argues that the T-axis (Figure 7) is a distinctly northern form. They are widespread throughout the Ertebølle and Swifterbant, where they are apparently purely functional. At the LBK site of Brześć Kujawski in Poland, they are however found in male graves, and so were evidently accorded a symbolic significance in farming society. They were manufactured at Brześć Kujawski, not imported as finished artefacts, but since they have no antecedents in the central European Neolithic, the concept evidently derived from the foragers (Bogucki 2008, 55-56).

Bone objects with geometric decoration likewise have a background in the Ertebølle, but not in the Neolithic. A decorated piece from the LBK site of Ośłonki in Poland is shown in Figure 7, and the unique bone armlets in female graves at Brześć Kujawski, similarly decorated, suggest that the farmers regarded decorated bone objects as symbolically important (Bogucki 2008, 56-58). Further west, antler objects with Mesolithic-type decoration have been found on LBK sites as far south as Vaihingen an der Enz and Ditzingen (Gronenborn 2010, 563). Finally, bone chisels have a deep history in the Mesolithic but not in the Neolithic; these too turn up at Ośłonki (Bogucki 2008, 59). Bogucki's intriguing hypothesis is thus that objects of symbolic importance were flowing more from foragers to farmers than *vice versa*. He adds that, since Ertebølle watercraft are far more impressive than those of the farmers, it is likely that Ertebølle people were the main traders, voyaging from the coasts up the rivers into the farming areas.

Domestic animals

It is sometimes assumed that foragers would aspire to own domestic animals in the same way that they would aspire to own a Neolithic adze: simply as the status-conferring product of a technologically superior society. This view has its roots in progressivist schemes of social evolution; more recently the practicalities have been addressed more directly. Some of the ethnohistorical situations discussed above have involved animals. Domestic animals being taken into forager communities may be considered in two categories: those linked to travel and hunting; and those forming a primary food source.

Recent foragers have adopted domestic animals to help with travel and hunting. The adoption of the horse by the Indians of the Great Plains of North America is perhaps the best-known example. A variety of pedestrian foragers, and also some horticulturalists, became highly mobile bison hunters after domesticating feral horses. Their entire cultures were revolutionised by this (e.g. Holder 1970; Ewers 1955). There are also some reports of Australian Aborigines riding horses (Reynolds 1981, 46-47). Both these were in areas of open plains, where there was plenty of fodder for the horses and few barriers to movement. Most foragers had dogs when contacted by Europeans, but the Tasmanians did not even know of their existence. "Yet within a few years of seeing their first dogs, the Tasmanians had recognised the potentiality of the animal, formed close bonds with it, and had incorporated it fully within their culture" (Jones 1970, 259).

This rapid adoption of technologically useful animals contrasts markedly with foragers' attitude towards food animals. Mobile foragers would find it very difficult to incorporate a small number of domestic animals – a couple of cattle are simply not a practical add-on to a lifestyle determined by the demands of foraging (Rowley-Conwy 2013, 301). The Skraelings of Vinland, the first Americans ever to see domestic cattle, were so terrified by the bellowing of Thorfinn Karlsefni's bull that they ran away (Magnusson & Pálsson 1965, 65). Australian Aborigines reacted similarly (Reynolds 1981, 9). When domestic cattle and sheep became more common, Aborigines frequently stole them – but not in order to create domestic herds of their own. Aborigines sometimes drove off herds of sheep and feasted on them until they were used up, and then carried out a new raid (Reynolds 1981, 162-163). More often they killed the domestic stock in order to punish the white colonists:

“On the troubled McIntyre frontier the squatter Jacob Lowe lost seventy-five cattle in a single night raid. The local clans had clubbed and speared the herd but none had been taken for food. In fact only two carcasses had been cut open. The hearts had been taken out and were placed on two poles stuck in the turf facing one another. The message was unmistakable.... The Aboriginal objective was clearly not food but the desire ‘to drive us away out of the district – to frighten us’” (Reynolds 1981, 106).

Even the settled Indian horticulturalists of Virginia had no use for the Europeans’ domestic animals, but just killed them. Zooarchaeological study reveals that domestic animals predominated in colonial assemblages virtually from the start (Bowen & Andrews 2000). William Strachey noted in 1610 that “Powhatan... and his people destroyed our hogs to the number of about six hundred” (Haile 1998, 441). In 1611 Sir Thomas Dale started building defensive blockhouses and palisades “to prevent the Indians from killing our cattle” (*ibid.*, 523). Colonisation proceeded by impaling ever larger areas to keep the Indians out – by 1614, Rochdale Hundred had “a cross-pale well-nigh four miles long... in which hundred our hogs and other cattle have twenty miles circuit to graze in securely” (*ibid.*, 826) – and peace deals specified that the colonists’ cattle were to be left alone (*ibid.*, 825).

These examples caution us to be wary of claims of domestic livestock among the foragers. Some claims have been advanced. Zvelebil (1998, Figure 1.6) listed no fewer than six possible instances of domestic cattle in the Ertebølle (see Figure 1 for locations), but not one stands up to scrutiny. At Dąbki in Poland all the Mesolithic cattle were wild (Kabacinski *et al.* 2009), and at Rosenhof the few claimed domesticates have been demonstrated by microbiological analyses to be wild aurochs (Noe-Nygaard *et al.* 2005, Scheu *et al.* 2008). Stratigraphic contexts are extremely problematic at Löddesborg (Welinder 1998) and Hüde I (Raemaekers 1999, 72-91), and in any case no Mesolithic bones have ever been published from the latter. The faunal reports from neither Tybrind Vig (Enghoff 2009) nor Ringkloster (Rowley-Conwy 1998) make any claims for domestic animals; it is not clear how this misleading impression could have arisen. Except for Hüde I, these sites are hundreds of kilometres north of the farmers, and it would be very difficult to drive domestic animals through dense woodland for these distances – this was not open country of the kind through which Aborigines drove their rustled sheep. Three claims of domestic animals come from the Swifterbant area (Figure 1). Those from Schokland P14 (Gehasse 1995) and Brandwijk-Kerkhof (Robeerst 1995) are problematic (Rowley-Conwy 2013). The most likely Mesolithic domestic animals are the goat bones from Hardinxveld-Giessendam De Bruin (Oversteegen *et al.* 2001). They are closest to the LBK, perhaps within trading or rustling distance, but they have not been directly radiocarbon dated.

Domestic cattle cannot simply slide along Mesolithic trade routes and become incorporated into forager culture as if they were stone axes (*contra* Zvelebil 1998, 17-18; 2006, 185). The rustling and slaughter of domestic stock, or the trading of joints of meat, would no doubt have occurred, but would necessarily be limited to areas very close to the farming frontier. And at the moment, there is remarkably little archaeological evidence even for these activities.

Cultivated cereals

The Swifterbant and Ertebølle foragers would have been well able to cultivate small stands of cereals, at least near semi-permanent or permanent settlements where people were not absent during the growing season. However, charred cereal grains have so far not turned up in Mesolithic contexts. The only evidence in favour of Mesolithic cereal cultivation is the presence of ‘cereal-type’ pollen in the palynological record. This has come under increasing criticism (Behre 2007; Lahtinen & Rowley-Conwy 2013). Unless and until charred cereal grains are found and are directly dated to the Mesolithic, cultivation remains unsupported.

A small parcel of cereals, a “fertile gift” (Jennbert 1984), would be relatively easy to transport. Barley might have been attractive as a producer of beer – an ‘intoxicating gift’ – and various foragers indeed practiced small-scale cultivation of intoxicants: tobacco in North America (Fritz 2006), millet among the Ainu (Watanabe 1972). A desire to get drunk could well have motivated Mesolithic people to acquire barley. However, Mesolithic people had their own means of getting drunk. The site of Rönneholm in Sweden has produced a large mass of raspberry seeds, two centimetres deep and covering about half a square metre; it would have taken about 20 kg of raspberries to produce this many seeds (Sjöström & Dehman 2009, 48-49). It is unlikely that such a heap of fruit would have been piled up and then just allowed to rot away. It is more likely that the seeds were dumped after the berries were soaked to make wine¹. The foragers were therefore self-sufficient even with regard to alcohol.

Conclusion: what did the farmers have that the foragers wanted?

The answer is: not very much. Table 1 summarises the evidence discussed above. Adzes for woodworking were evidently used by the foragers, but the technological capabilities of foragers and farmers were symmetrical: the foragers produced their own adzes, and there is no reason to suppose they were inferior. The foragers showed little interest in farmers’ ceramics, preferring to make their own according to their own stylistic ideas, which were derived from other foragers further up the Baltic. Domestic animals and cultivated plants, such important symbols of development and progress to us modern Europeans, seem likewise to have held little interest.

The foragers, it seems, had items that the farmers wanted. In discussions like this it is obligatory to cast the foragers as the clients by mentioning ‘forest products’: furs, and honey. But the presence of microliths and a Mesolithic bow on LBK sites suggests that the farmers actively sought out foragers’ hunting gear. The foragers were likely to have been superior in other areas of technology as well, for example canoes, harpoons, fishing nets and so on. If Bogucki’s (2008) hypothesis is correct, the farmers also accorded symbolic significance to forager artefacts that had no such significance among the foragers themselves. Bogucki (*op. cit.*, 61) proposes that Ertebølle *voyageurs* were the main traders, penetrating far up the river networks in their superior watercraft, and Gronenborn (2009, 2010) also argues that the hunter-gatherers were the principal travelling traders. It is noteworthy that the forager imports plotted in Figure 1 all come from sites quite close to the Rhine-Main river system, and the Polish sites discussed by Bogucki are close to the Vistula.

4. Conclusion: beyond the anthropological comfort zone

¹ I am grateful to Mr. Jake Newport for this suggestion

I have argued that we have placed too much weight on the anthropological and ethnohistorical accounts of farmer-forager contact in our interpretations of Mesolithic/Neolithic contact in northern continental Europe. The contact situations in the last millennium have been between peoples with asymmetrical technologies. This has inevitably led to the foragers becoming clients of the colonial people, supplying 'forest products' in return for superior technology for a brief time, before being swept aside by the global march of cultural evolution.

When the technologies were symmetrical, as they were in the Mesolithic and Neolithic, there is no reason at all to suppose that the foragers were peripheral clients of the farmers. We need to move beyond our anthropologically-derived understanding if we are to comprehend anything of the 1500-year interactions between peoples with similar technologies. The exchange situation may have been more balanced than we usually assume. The foragers may even have had the upper hand: perhaps we should consider recasting the farmers as the clients on the cultural periphery. The foragers had after all developed sophisticated means of exploiting their environment, and maintained a high population density in stable residential centres. And they had been doing this for millennia before the arrival of farming. The farmers on the other hand were carrying an alien economy into an environment to which it was not adapted, and which they initially did not know. They may have needed all the help they could get.

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Figure captions

Figure 1. Map of the region considered here, showing the approximate northern edge of farming cultures, and the distribution of adzes made by farmers found in the area occupied by foragers. Distributions SW of the Elbe from Verhart (2012, figs. 3 and 5), NE of the Elbe from Klassen (2002, fig. 20.1). Klassen plots only Rössen adzes so any LBK adzes NE of the Elbe are not included.

Figure 2. Mick Leahy's technology in Highland New Guinea, 1930-35. Top: a rifle causes amazement. Centre: a saucer attached to a man's forehead is the symbolic equivalent of an imported marine shell. Bottom: other Australian items performing the same role. (I am most grateful to Leo Verhart for providing these photographs).

Figure 3. Top: a stamped earthenware bowl in use by a Labrador Inuit family at Nain-Okak, about 1912 (from Cabak and Loring 2000, fig. 6; reproduced by kind permission of the Moravian Church Archive and Library, London). Bottom: stamped earthenware bowl from the Inuit midden at Nain, Labrador, drilled and repaired in the manner traditionally used for soapstone vessels (photograph kindly supplied by Stephen Loring).

Figure 4. Alternative reasons for the presence of Mesolithic microliths on LBK sites. Modified and translated from Lüning (1991, Fig. 13).

Figure 5. Rössen adzes from Denmark, broken during use and reworked. From Fischer (2002, fig. 22.7). (Reproduced by kind permission of Anders Fischer).

Figure 6. Ceramic traditions in the Baltic. 1: early older Comb Ware; 2: Säräisniemi; 3: Narva; 4: Neman; 5: Ertebølle; 6: LBK Neolithic. After Hallgren 2008 Fig. 4.1 (I am grateful to Fredrik Hallgren for permission to reproduce this figure, and for supplying a high-resolution original).

Figure 7. Bone objects adopted by farmers from forager originals. Top left: T-axe from Brzesc Kujawski. Top right: Mesolithic bone chisel from Hohen Viecheln. Bottom: decorated bone from Osłonki. After Bogucki 2008, Figs. 5.3, 5.6 and 5.8 (I am grateful to Peter Bogucki for permission to reproduce these figures, and for supplying high-resolution originals).

Table 1. Details of items crossing the forager – farmer boundary.

item	direction	symbolic value?
bows	to farmers	‘shock and awe’ for farmers
T-axes	to farmers	in farmers’ burials
amber bead	to farmers	in both societies
oyster pendants	to farmers?	farmers only make pendants
shell buttons	to farmers?	farmers copy in other white materials
decorated bone	to farmers	in farmers’ burials
stone adzes	to foragers	no – not copied by foragers
pottery	both have	no – not copied by foragers













